March 18, 1958 J. ODEGAARD 2,827,617

COMBINATION MALE PLUG AND FEMALE OUTLET

Filed Dec. 5, 1956

Fig. 1

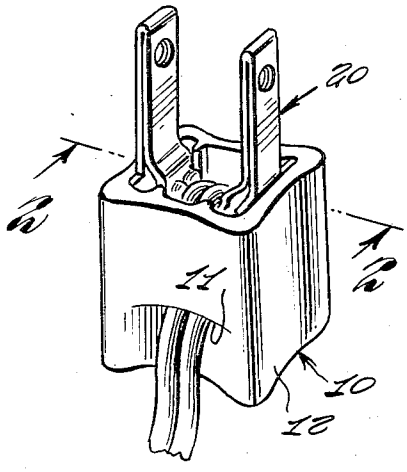


Fig. 2

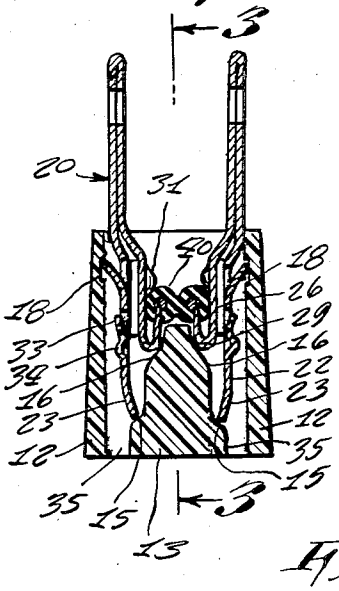


Fig. 3

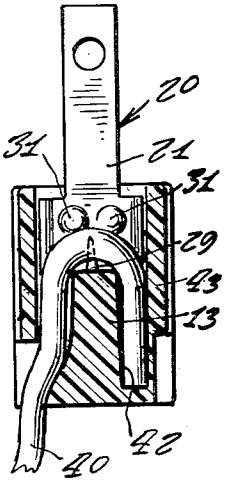


Fig. 5

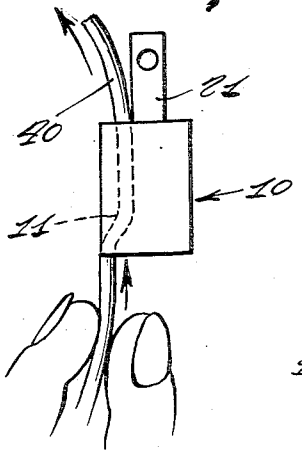


Fig. 4

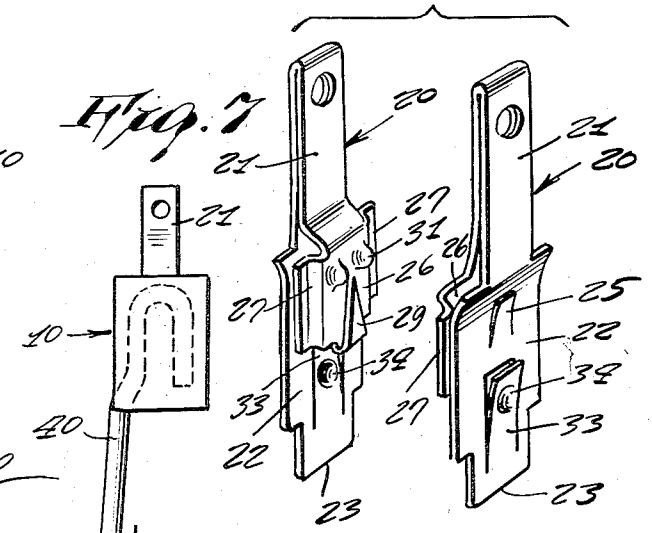
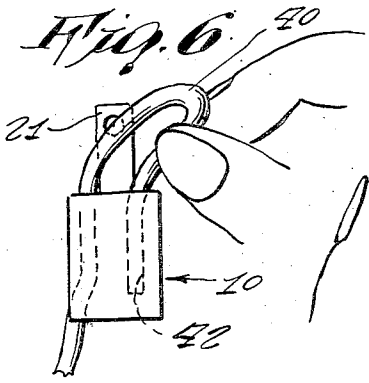


Fig. 7

Fig. 6



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2,827,617

COMBINATION MALE PLUG AND FEMALE OUTLET

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1 Claim. (Cl. 339—97)

This invention relates to electrical connectors and, more particularly, to combination male plugs and female outlets.

Various types of self-stripping types of male plugs have been provided in which the plug may be assembled with the electrical line without actually stripping the cord or requiring the use of special tools. An object of this invention is to provide a combination male plug and female outlet that may be readily assembled with ordinary electrical lines without the use of special tools, that is simple in construction, efficient in operation, and which is virtually fool-proof.

Another object of the present invention is to provide a combination electrical male plug and female outlet having a one piece plastic body and a pair of metallic electrical connectors secured therein by self-contained fastening tabs, wherein the terminal of a flexible electrical insulated line may be assembled therewith without prior preparation of the line or the connector.

All of the foregoing and still further objects and advantages of this invention will become apparent from a study of the following specification, taken in connection with the accompanying drawing, wherein:

Figure 1 is a perspective view of a device made in accordance with the present invention in operative association with an electrical line;

Figure 2 is a cross-sectional view taken along line 2—2 of Figure 1;

Figure 3 is a cross-sectional view taken along line 3—3 of Figure 2;

Figure 4 is an exploded perspective view of a pair of contact elements made in accordance with the present invention;

Figure 5 is a diagrammatic view showing one step in the assembly of an electrical line with the connector;

Figure 6 is a view similar to Figure 5 showing a further step in the assembly; and

Figure 7 is a view similar to Figure 5 showing a final step in the assembly of the elements.

Referring now to Figure 1 of the drawing, an electrical connector made in accordance with the present invention is shown to be constructed in one piece of a plastic material. The front wall of the connector is provided with a downwardly and inwardly extending opening **11** that communicates with the interior of the connector and an integral center post **13** that extends substantially parallel to the side walls **12**. This center post is provided with an outermost inclined abutment **15** and an innermost inclined abutment **16** adjacent each side wall **12**. These abutments cooperate with a groove **18** on the inner surface of each side wall **12** in a manner hereinafter described.

As is more clearly shown in Figure 4, the plug is provided with a pair of identical plug conductors **20** that are of a metallic strip material folded over at a mid-portion to provide a longitudinal shank **21** of double thickness, one side **22** of which terminates in an end abutment **23** while an intermediate portion thereof is provided with an outwardly struck tab **25**. The other side **26** of the conductor is provided with a pair of flanges **27** that are operative to

space both sides apart from each other, as more clearly shown in Figure 2. This other side **26** is provided with upwardly turned contact points **29** that extend in close proximity with a pair of protuberances **31** that are used to impale and secure the adjacent portions of an electrical line assembled therewith, in a manner hereinafter described. The one side **22** of each conductor is also provided with an outwardly and upwardly struck contact plate **33** that has a centrally located contact protuberance **34**.

Referring to Figures 2 and 3, it will be noted that the plug conductors are securely maintained in assembly with the body of the connector by means of the respective tabs. The inner end **23** of the plug conductors is in abutting engagement with the outermost abutment **15** of the center post which limits outward movement thereof, while the outwardly and upwardly struck tab **25** is received within the associated groove **18** in the connector side wall which effectively limits the upward movement thereof. A conventional, plastic or rubber insulated two wire line **40** may be readily assembled with the connector, as shown in Figures 5 to 7, by first inserting the end of the line inwardly and upwardly through the opening **11** in the front wall. The outer end of the line is then turned downwardly and inwardly back into the connector so that the end becomes seated in a compartment **42** that is within the rear wall **43** of the connector, as more clearly shown in Figure 3. This compartment prevents the two wires from being shorted or frayed. With the end properly seated, as shown in Figure 6, the opposite end of the line is pulled downwardly as shown in Figure 7, whereupon the line is drawn over the center post **13** and into engagement with the oppositely facing plug conductors **20**. The downward pressure of the line **40** causes the respective branches of the line to become impaled upon the points **29** so as to establish contact therewith. The protuberances **31** effectively maintain the line in assembled relationship with the respective contacts and in a state of slight compression. The flanges **27** on each plug conductor **20** limits the outward movement of the inner side **26** of each conductor so that the parts are maintained in proper relationship. With the parts in proper assembly, the lowermost portion of the connector functions as a female outlet. An opening **35** at each side permits access to the interior of the connector by any similar plug having a male plug arrangement wherein the conductors are adapted to engage with a struck out contact plate **33** and contact protuberances **34** on each conductor.

While this invention has been described with particular reference to the specific form shown in the drawing, it is to be understood that such is not to be construed as imparting limitations upon the invention, which is best defined by the claim appended hereto.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:

An electrical connector comprising, in combination, a hollow insulated body having an inwardly extending opening in one wall communicating with the interior of said body, a closed compartment in an opposite wall of said body communicating with the interior of said body, a pair of side walls connecting said one and opposite walls together, a center post integrally formed within said body and spaced from said side walls to define a pair of female outlet passageways therewith, and a pair of male conductors each disposed within one end of said passageway in abutting assembled relationship with said center post and one of said side walls, each of said conductors having an inwardly disposed contact point adjacent to said center post for electrical connection with one branch of a two wire supply line, one end of said supply line being adapted to be inserted through said opening and over said center post into said compartment, an intermediate portion of said line engaging with said contact points and adapted to

be impaled thereupon, each of said male conductors having one inner end in abutment with said center post limiting movement thereof in one longitudinal direction, an intermediate portion in abutment with an adjacent side wall limiting movement thereof in an opposite direction, each of said side walls including a transverse groove, said intermediate portion of said adjacent conductor being spring biased into said groove, the adjacent facing portions of each of said conductors being provided with a sharp contact point, and a pair of spaced protuberances disposed on

each side of said contact point and laterally spaced therefrom, whereby all of said protuberances on both of said conductors restrict the passageway between said conductors adjacent to said contact points.

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